REMARKS

Reconsideration and allowance are respectfully requested.

The abstract and specification are amended in line with current U.S. patent practice. The original apparatus claims are canceled and replaced with new apparatus claims 11-15 that are drafted to not used means plus function language so the new apparatus claims 11-15 are not limited in there scope by 35 U.S.C. §112, sixth paragraph.

Claims 1-10 stand rejected under 35 U.S.C. §102 as allegedly being anticipated based on Haapoja. This rejection is respectfully traversed.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 1576 (Fed. Cir. 1991). Haapoja does not satisfy this rigorous standard.

Haapoja describes a method for single-carrier and multi-carrier reception at receiver 220 in Figure 3 of an RF signal which is split and downconverted into in-phase (I) and quadrature (Q) channel signals each containing a plurality of sub-carriers at a low intermediate frequency (low-IF). The downconverter mixers in 224A (I) and 224B (Q) are driven from a LO 260 through a phase shifter 225. The resulting I and Q signals are digitally added or subtracted to obtain one or both of an upper sideband and a lower sideband containing desired ones of the multi-carriers, i.e., image rejection. The mixers are followed by base band filters 226A and 226B. So if an input signal includes "wanted 2" and "wanted 4" in Figure 2, which are mirror signals, one of these is rejected in signal selection block 220A. See [0045].

- 14 -

1522627

Unlike the claimed technology where the received signal has multiple carrier frequencies and where each carrier frequency is fed through a separate branch, Haapoja effectively processes in each branch only one carrier frequency at a time. Haapoja is concerned with image rejection, and claims 1-4 and 11-13 are directed to mixing the multiple carrier frequencies so that they are the same in the respective branch. This allows the same type of IF filter to be used in all the branches. Claim 11 for example recites "a splitter configured to split the received signal into a first branch and a second branch, the received signal including at least a first carrier wave at a first carrier frequency and a second carrier wave at a different second carrier frequency." Haapoja's I and Q branches include one carrier wave at the same center carrier frequency ω_c. See the received signal in Figure 3 represented as $R(t)*\cos(\omega_c*t + \varphi(t))$. The received signal in the non-limiting example shown in Figure 1 of the instant application in the "bubble" on the upper left hand corner of the drawing shows that each branch has two carriers at different carrier frequencies f_{ch1} and f_{ch2}.

Claim 11 also recites "wherein the filter in the first branch and the filter in the second branch have substantially the same filter characteristics so that the signal in one of the branches after filtering includes only the filtered first carrier wave and the signal in the other of the branches after filtering includes only the filtered second carrier wave, but both of the first filtered carrier wave and the second filtered carrier wave are at essentially the same center frequency." It is not understood how the Examiner is interpreting Haapoja's filters to meet this claim language. In [0053], Haapoja explains that the filters 226A and 226B "cover all five sub-carriers."

Claims 7-8 and 14-15 mix the multiple carrier frequencies so that only one mixer is needed for the second frequency shift. Claim 14 recites "a first branch filter configured to filter the frequency-shifted signal in the first branch so that after filtering, the first branch includes

1522627

only one of the filtered first and second carrier waves" and "a second branch filter configured to filter the frequency-shifted signal in the second branch so that after filtering, the second branch includes only the other of the filtered first and second carrier waves." The Examiner seems to be reading these filters on the same filters 226A and 226B used to for claims 1-4 and 11-13 where the filter in both branches has essentially the same characteristics. In claims 7-8 and 14-15, however, the branch filters have different characteristics because the first branch filter passes the one of the first and second carrier waves and the second branch filter passes the other of the first and second carrier waves.

Lacking features from the independent claims, the anticipation rejection is improper and should be withdrawn. Accordingly, the application is in condition for allowance. An early notice to that effect is requested.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____
John R. Lastova
Reg. No. 33,149

JRL:maa
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

- 16 -

1522627